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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/646,196	08/22/2003	Yiliang Wu	D/A2543	9008
27885	7590	05/31/2006	EXAMINER	
FAY, SHARPE, FAGAN, MINNICH & MCKEE, LLP 1100 SUPERIOR AVENUE, SEVENTH FLOOR CLEVELAND, OH 44114			ZEMEL, IRINA SOPJIA	
			ART UNIT	PAPER NUMBER
			1711	

DATE MAILED: 05/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/646,196	WU ET AL.	
	Examiner	Art Unit	
	Irina S. Zemel	1711	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### **Status**

1) Responsive to communication(s) filed on 23 March 2006.  
 2a) This action is **FINAL**.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### **Disposition of Claims**

4) Claim(s) 1,2,4-8 and 10-25 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) 25 is/are allowed.  
 6) Claim(s) 1,2,4-6 and 10-23 is/are rejected.  
 7) Claim(s) 7,8 and 24 is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### **Application Papers**

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### **Priority under 35 U.S.C. § 119**

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### **Attachment(s)**

1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date \_\_\_\_\_.  
 4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date \_\_\_\_\_.  
 5) Notice of Informal Patent Application (PTO-152)  
 6) Other: \_\_\_\_\_.

**DETAILED ACTION**

***Double Patenting***

The rejection is withdrawn in view of the terminal disclaimer filed by the applicants

***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1,2, 3-6, 10-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 20030144466 A1 to et al., (hereinafter "Ong '466).

The rejection stands as per reasons set forth in the previous office action.

Claims 1,2, 3-6, 10-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 1327647 to Xerox Corporation., (hereinafter "Xerox").

The rejection stands as per reasons set forth in the previous office action.

***Response to Arguments***

Applicant's arguments filed 3-23-2006 have been fully considered but they are not persuasive. The applicants argue that the claimed polymers are not obvious over either of the cited references. The applicants state that "Whether a monomer has substituents, or how many substituents the monomer has, dramatically affects the properties of polymers such as molecular weight, melting temperature, glass transition temperature, crystallinity, solubility, conjugation

length, etc. As a result, different polymers show different behavior. In addition, polymers with substituents and polymers with different numbers of substituents require different synthetic methods." See page 3 of applicants response. The examiner agrees that different substituents, heir number and/or lack thereof may have effect on the properties of the polymers derived from such monomers. The question is whether those properties are unexpected or well known and predictable. An ordinary artisan would have known that a non-polar substituent on an aromatic ring (as any substituent) has an effect on the electron distribution of the aromatic monomer (among other known effects) and, thus has certain effects on the polymerization properties of the monomer and various properties of the resulting polymer. However, there is absolutely no evidence on the record that any of the properties of the claimed polymers are unexpected as compared to the closest polymers disclosed in the prior art. The applicants further state that "that monosubstituted thienylenes and disubstituted thienylenes do not have close structural similarity (i.e. are not homologs) and that their properties cannot be predicted. For example, under the Examiner's reasoning, polymer (8) of the instant claims should have propedies similar to that of polymer (3) in EP 1327647. However, polymer (8) has twice the mobility of polymer (3). This difference in properties cannot be predicted by their structure." Page 3 of the response. This argument is not convincing. First of all, the applicants'position that monosubstituted thienylenes and disubstituted thienylenes do not have close structural similarity and are not homologs is contrary to the common knowledge of an ordinary artisa and plain repugnant to

the very definition of homologue series, which are defined in any chemical dictionary as a “series of organic compounds in which each successive member of a homologous series varies by a CH<sub>2</sub>. from the preceding member”. As far as the unpredictability of the properties, the examiner can not find any evidence of such unexpected result for the claimed polymers as compared to those expressly disclosed in the prior art. Simply because two polymers disclosed in the prior art have some arguably unexpected properties, which monomeric structure, by the way, differ from each other by a lot more than one CH<sub>3</sub> substituents (note four CH<sub>3</sub> substituents AND a cyclic structure bridging aryl rings that provides, at the minimum, rigidity of the molecular structure as compared to free rotating structure of unsubstituted monomers), provides absolutely no evidence or correlation for the unexpected structures of the claimed polymers as compared to the closest discloses polymers.

The applicants further argue that “the Examiner does not appear to show where there is motivation in either reference to add substituents to either the thienylene or the arylene monomer” The examiner can not agree with this statement. It is well established by the court that rationale to modify or combine the prior art does not have to be expressly stated in the prior art; the rationale may be expressly or impliedly contained in the prior art or it may be reasoned from knowledge generally available to one of ordinary skill in the art, established scientific principles, or legal precedent established by prior case law. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). *In re Eli Lilly & Co.*, 902 F.2d 943, 14 USPQ2d

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1741 (Fed. Cir. 1990) (discussion of reliance on legal precedent). In the instant case, the motivation comes from the established legal precedent as discussed in the prior office action.

Thus, in the absence of showing unexpected (and not predictable) results that distinguishes the claimed polymer over the closest prior art, the rejection of claims stands as re=per all of the above reasons.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Irina S. Zemel whose telephone number is (571)272-0577. The examiner can normally be reached on Monday-Friday 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (571)272-1078. The

fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Irina S. Zemel  
Primary Examiner  
Art Unit 1711

ISZ

